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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/765,226

01/18/2001

Baining Liu

101215-55

7377

7590

09/28/2004

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EXAMINER

NGUYEN, TUAN N

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/765,226

Applicant(s)

LIU ET AL.

Examiner

Tuan N Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,4,6,7 and 9-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,4,6,7 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In responds to applicant's amendment filed 07/15/2004, claims 3, 4 have been amended. Claims 1,2, 5, 8, 12, and 13 are canceled. Claims 3,4,6, 7, 9,10,11 are pending.

Claim Rejections - 35 USC § 102/103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102/103 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 3, 4, 9, 11 are rejected under 35 U.S.C. 102(a)/103 as being anticipated by Gries et al. (US 6633595) or Zanger et al. (US 6317449), or Pelouch et al. (US 5383198).

With respect to claims 3, 4 Gries '595 discloses and shows in figure 1 " A frequency-converter laser apparatus comprising an optical pumping source for producing optical pumping radiation; a unidirectional ring cavity comprising a frequency conversion crystal, a prism and mirror arrangement, wherein the frequency conversion crystal is positioned such that the radiation produced by the optical pumping source enters in a direction such that the crystal is passed by radiation only in one selected beam path direction. (Fig 1: Prism, mirror 1 & 2, and optically nonlinear crystal). Pelouch et al. '198 also shows a unidirectional ring cavity comprising a Brewster-angle crystal, prism, and mirrors arrangement, such that the radiation produced by the optical pumping source enters in a predetermined direction (Fig 1: 18-30). Zanger et al. ' 449 also shows a similar structural (Fig 4). Since claim 3 recites the same or

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identical limitations it is inherent to use patents ('595), or '198, or ('449) to recite the method of producing frequency-converted laser radiation, product by process.

With respect to claims 9 and 11, Gries '595 disclosed the crystal made from BBO (ABSTRACT; Col 1: 60-61), and the prism connected to a piezoelectric element (Col 2: 15-20).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or non-obviousness.

5. Claims 6,7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gries et al. (US 6633595) or Zanger et al. (US 6317449), or Pelouch et al. (US 5383198).

With respect to claims 6, 7, 10 Gries '595 or Zanger et al. '449 discloses the above, and further shows the coupling optic disposed between pump source and ring cavity. The claims further require a stage amplifier and an external resonant cavity, which is disclosed by Zanger et

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al. '449 (ABSTRACT). Even though Gries '595 did not explicitly disclosed a stage amplifier, however the ABSTRACT disclosed the "arrangement for resonant frequency doubling..." suggest the stage amplifier is inherently built in, and the ring cavity is an external resonant cavity, it is within one skill in the art.

Response to Remark

6. Applicant pointing out that Gries' laser arrangement has two elements of optical transparent materials are combined to compensate dispersion. And the conversion crystal of Gries is not positioned in a predetermined or selected direction. The examiner believes that the beam path has an inherent predetermined or selected direction, and applicant did not distinguish the claim from the reference, as disclosed in the remark. In relating to the unidirectional ring cavity Gries et al. did not discretely disclosed if the arrangement is unidirectional or bidirectional, and Zanger et al. '449 shows in figures 2,4,8,9 that the beam path is unidirectional.

Communication Information

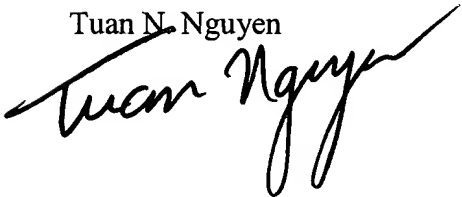
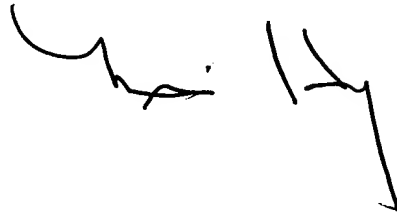
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (703) 308-16741. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Tuan N. Nguyen

A handwritten signature in black ink, appearing to read 'Tuan N. Nguyen', with a stylized, cursive script.A handwritten signature in black ink, appearing to read 'Minsun Oh Harvey', with a stylized, cursive script.

MIN SUN OH HARVEY
PRIMARY EXAMINER